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ABSTRACT

My ambition for this shorter article is to add to an earlier discussion (see Rodil and Rehm, 2015) about the interplay of digital systems and the digitisation of intangible heritage. In particular, I wish to sketch some conceptualisations of what and how we can look at the digital systems (I refer to these as artefacts) as having certain inscribed perspectives. Meanwhile, providing some related literature, I show one possible road out of the complexity (with a co-responsible design known as Participatory Design), which emerges when certain cultures design and build artifacts together with the purpose of containing other cultures' intangible heritage. At the end I provide some questions for reflection, if one is considering digitising intangible heritage.

Keywords

digitisation of ICH, Participatory Design, digital learning applications, virtual heritage, indigenous groups, southern Africa, Namibia

Introduction

What I propose in this article, based on and informed by long-term studies with indigenous groups across southern Africa, is the experience of the outcomes of design activities, and in particular of how collaborative design activities can make visible certain challenges when preserving and including ICH in the design of technical systems. The point here is not to suggest that there might be a 'one-size-fits-all' way to preserve ICH in digital form, nor do I criticise the current more traditional methods and long-term rationales, but rather I take an agnostic approach and seek to enhance the discourse on the various ways in which we can look at ICH and its preservation through digital means.

As an academic I have an orientation towards technology and design, and share the UNESCO view of ICH as being vital for the communities where these

practices are performed, maintained and transferred to younger generations. Obviously, maintaining generations of accumulated knowledge and, for instance, capturing knowledge about sustainable interaction with the surrounding environment, will benefit humanity in general. Having a technological orientation means that I see ICH primarily as material which can be digitised, enabling future generations to benefit from it. While I explore how ICH can be handled in a digital domain, I also seek to find new ways in which this heritage can be performed and transferred, for instance as Virtual Heritage. To provide an example, I am currently engaged in transferring stories from indigenous communities in Namibia into government schools in the form of digital learning applications. The underlying question for that particular project is: Why should Namibian school children learn to read English by reading Snow White when there are more relevant and contextually fitting stories to tell?

But, there is a schism between digital preservation and *de facto* systems design. The former concerns the past and current practices, whereas the latter is oriented towards preserving past and current practices but for a digital future. The digital future here reflects how the preserved material can become embedded into technical systems and how this material will be handled in future digital applications. When the ICH becomes digital, turned into bits and bytes, it undergoes a transformation from one form to another. This transformation, in my view, must be scrutinised and be a process involving curators and the communities where ICH is grounded.

We (as a research group) always work in close partnership with the communities governing heritage and try *to involve them actively in its management,* as has been stipulated in the *Ethical Principles* and Article 15 of the ICH *Convention* (UNESCO, 2003). First and foremost, we are concerned to evaluate continuously how ICH is altered when it becomes digital, but as I will go on to describe, there are more practical and political reasons for designing technology with the people currently safeguarding ICH than to treat a digital system as being a value-free place for digital content. The main aim of this article is to promote a critical stance towards the view of technical systems as value-free constructions. I plan to isolate several topics when 'going digital' and provide examples of related work as well as work of my own, to support the perspectives presented.

The strategy of this short article is to expand on a discussion started in this journal in 2015 (see Rodil and Rehm, 2015). We intend to continue this discussion in the future and cordially invite the readers of IJIH to join in.

Challenges when going digital

UNESCO promotes the following in Article 13, part C: *foster scientific, technical and artistic studies, as well as research methodologies, with a view to effective safeguarding of the intangible cultural heritage, in particular the intangible cultural heritage in danger.*

While the ambition is sound, the actual implementation and use of technical systems in preservation is not a trivial task. But before blindly settling on any technical system as a tool to be used in preservation I here provide a critical perspective on the premises of such a system.

I refer to these technical systems as artefacts because they are tangible products of software development. I wish to draw a distinction between *tangible cultural artefacts,* which are traditional artefacts blended and/or enhanced by digital means (such as the Digital Ayoyote Rattle in Martinez, 2011, or Story Beads in Reitsma et al., 2011), and more traditional computing systems such as desktop computers and mobile devices, where the software pertains to preserve, host and make ICH content accessible. An example of this could be the HomeSteadCreator (Rodil et al., 2012), where the focus was placed on re-contextualising recorded videos of various indigenous practices in a 3D modelled terrain, but on traditional systems such as laptops and mobile devices.

Although I have a technical approach to ICH, I also have a political view underpinning the discourse on artefacts, which is that any artefact should be able to represent contemporary ICH fairly and for future use, and, in that case, introducing western technology may have consequences for local culture. By western technology I mean artefacts having an origin in a different context than that in which a particular element of ICH is performed and with a different intended use. An example could be to store

videos of indigenous wedding practices in databases not valorising the *de facto* locations of these rituals or how people engaged in parts of these practices are not always seen through the camera lens (for an example see, Rodil et al., 2014). It poses the questions: what are we in fact not recording? And how does that affect the understanding of what has been recorded? A way to answer such a question might begin by looking at the artefact in hand.

Merritt and Bardzell (2011, p. 5) explain the possible consequences of introducing artefacts constructed from somewhere else in the following way:

> *If daily life for a person in a developing—or less technologically developed - country operates according to familiar culture, then repeated, interactive experiences with a newly introduced Western-designed technology create new cultural components carried by the verbal and visual language embedded in that design. If the visual semiotics differ enough from the surrounding culture, the technology will either not be adopted or will force a user to leave his or her surrounding culture behind while interacting with the newly implemented technology.*

From a political perspective, this consequence as highlighted by Merritt and Bardzell, is in many cases not a desirable outcome. First and foremost this is because of acculturation, as indigenous people when using a technology should not adopt others' ways of doing / thinking without being critical about the consequences thereof. But on a more practical level, the use and interaction with computers should be a meaningful experience - meaningful in the sense that the system should reflect local viewpoints and the ICH of the users.

Plate 1
System evaluation with members of the OvaHimba tribe in Northern Namibia – The author is sitting on the upper left. This field trip and documentation were funded and conducted with research colleagues from Namibia University of Science and Technology.
Photo: Heike Winschiers-Theophilus, courtesy of Namibia University of Science and Technology. Photo taken in Ohandungu, 2 November 2013.

Artefacts as social constructs

One way to look at these artefacts is from the perspective that they are socially constructed (see Hacking, 1999 and Leeds-Hurwitz, 2009). Floyd (1992, p. 89) provided a way of looking at the issue: *There is a given reality out there which we come across during software development. By analysing the facts of this reality we obtain requirements for the software.* Floyd further commented on what could be interpreted as a particular mindset regarding ontology: *Software production is based on models representing reality. Models should map reality correctly* (ibid). And as Naur (1985) formulated; software development is theory-building. The fundamental question is whether these models, developers and artefacts can accurately map the experienced reality of indigenous people and the associated intangible material? Floyd (1992: p. 2) suggests *... bringing about what we hold for real, which is the key to constructivist thinking.*

I recently published a book chapter (please see Rodil, 2015) describing many of these examples mostly pertaining to computer graphical visualisation of indigenous knowledge serving as a scaffold for community collected video material of ICH.

I learned how (to me) seemingly unnecessary details and my own assumptions of mapping the real community context in the form of 3D modelled representations led to countless examples of my 3D construction being unaligned with the experienced reality of the indigenous project partners (OvaHerero and OvaHimba communities in Namibia). For instance, that constructs of space are not culturally neutral, as I would prioritise mapping what I could see in the community – not accommodating for or understanding the meta-physical space. Or that the community members' experienced distances between places (such as villages) are not necessarily possible to represent in metric units. The prototypes I developed did not include or accurately represent these facets of their experienced reality. Fortunately, the many indigenous people I have met since 2010 (community members from the OvaHerero and OvaHimba tribes) have all been eager to teach me and assist in adapting prototypes we have been busy designing together.

Many examples have shown me how useful it is to be able to 'bring about what we hold for real' thus enabling indigenous partners to be critical towards my understanding, yet it was also made clear to me that no matter how true or accurate I tried to be, my assumptions would always have to be checked.

In this way, the developer's viewpoints (my own) were inscribed (programmed) into the artefact and then, by construction, laid out in the open. Whether one sees the need to evaluate how an artefact prioritises certain perspectives or find the need to check the assumptions of the designer is a methodological decision. To me it is cardinal, how else might we find a respectful synergy between the intangible heritage and the computer?

See (Plate 1) as an example where I evaluate a prototype with indigenous project partners. In this particular example I evaluate a system prototype for digital storytelling with members of the OvaHimba tribe in Northern Namibia.

Conceptualisation

The design and construction of artefacts is a multi-sided, cultural and complex process. Often the people responsible for, or engaged in developing artefacts do not share the ambition of the community of this journal to preserve ICH. The context for the use of artefacts tends to be different from the indigenous contexts in which ICH is performed and transferred. The technologies we can use for preservation

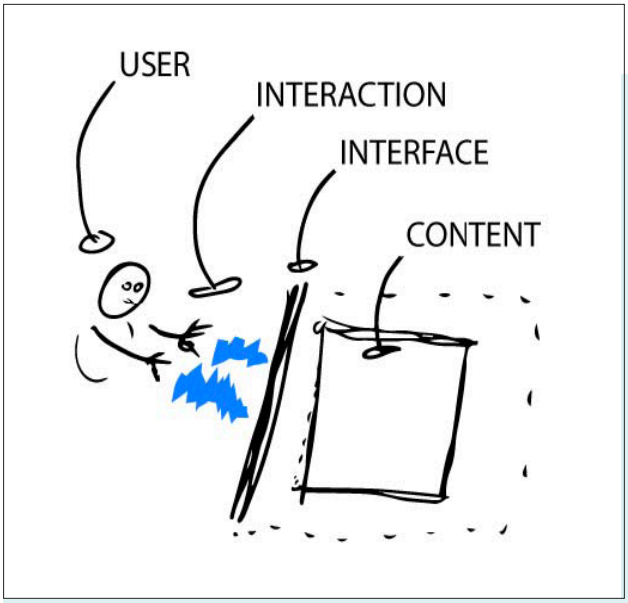

Figure 1
A simplified conceptualisation of an artefact and its user

are constructed in societies and contexts which do not innately prioritise indigenous viewpoints. Thus the ontology of an artefact reflects a certain view of the world, namely the view of its makers, whereas indigenous ontology and the practices associated with it have a different orientation.

I suggest looking at this notion of an artefact a bit more holistically (see Figure 1) and considering the intended user of the artefact, how the user interacts with it, how the interface links the user to the content, and ultimately how this content is organised.

Academics in disciplines related to technical development and ICH have conducted empirical work and provided findings from collaborations with indigenous people on how indigenous knowledge and intangible heritage become altered or inaccessible to indigenous people when becoming digital. The following examples are mostly to further point readers of this journal to publications which report on the challenges of when systems and intangible heritage meet.

User: It has become customary to model and design in a way which enables users to have a meaningful experience with an artefact. The problem is, who or where do these models and findings come from? In many cases the data that lays the foundation for understanding the user comes from the behavioural sciences. But as suggested by Hendrich, Heine and Norenzayan (2010), much of this data comes from what they term WEIRD (Western, Educated, Industrialised, Rich and Democratic) societies. It thus becomes problematic if computing textbooks, empirical data and digital trends from certain populations are used across all populations with an assumption that they are equally meaningful.

If the user is to be an indigenous person, perhaps with little digital literacy, one could begin by asking: how do we understand the user concept and how can we inform the design of the artefact with that user in mind?

Interaction: While the use of touch screens and input devices such as a computer mouse, are, to frequent users considered almost 'universally' intuitive – these interaction protocols are programmed and learned through use. These protocols are not necessarily familiar or meaningful to indigenous communities or to the community context. An example of how the physical community context and considerations of what constitutes meaningful system interaction forced the change from input devices and personal computers to touch-based mobile devices is found in Rodil et al. (2012). To provide an example; starting in 2010 working with the OvaHerero in Eastern Namibia I used laptops for the prototypes, yet the Elders commented on how unnatural a computer mouse was to use, it was in fact making them not want to use the prototype. Furthermore, the laptop would suffer from the heat and the sand as local practice directed us to carry out studies outside. From that point our prototypes became touch-based and on tablets. One could ask, is the user-artefact interaction meaningful in relation to local practices and the local physical context?

Interface: The interface of the artefact is responsible for connecting the user with the digitised ICH in ways that are meaningful to that user. As researchers and developers, we habitually interact with interfaces and have become accustomed to a dominant western orientation and use of metaphors still bearing the legacy of the office of the 1980s. These metaphors are contextual, cultural and not necessarily transferable to indigenous curators. The problem is that we have a tendency to take the recognition of these metaphors for granted. Several authors have provided support for re-thinking how we present and find information on interfaces linking indigenous users and indigenous content. Kapuire and Blake (2011) describe how indigenous community members were obstructed from finding their own recorded videos by a textual database search and developer defined meta-data. The interface did not allow the curators to find their own content in a way that was meaningful to them. Furthermore, the authors comment that even the concepts of 'uploading' and 'user login' were not readily understood by indigenous community members.

Another example is presented by Winschiers-Theophilus et al. (2008). The authors provide insights from usability studies of a bush encroachment decision-support system in Namibia with local rangeland managers. The authors report that the reason for its initial failure was:

> *A highly effective and efficient system with an inference engine operating on rules originating from western-style paradigms, assuming a rational, logical, and abstract decision process, with a transparent rule justification was unacceptable for the local community.* (ibid: p.2).

Based on their studies, the authors promote the idea that community members should be involved from the beginning in the conceptualisation of any such system.

Content: How ICH content as data (such as video, text, coordinates, 3D points etc.) is organised might hinder use or violate the protocols of the community providing the data.

Christie (2004, p. 1) makes the following point: *Databases are not innocent objects. They carry within them particular culturally and historically contingent assumptions about the nature of the world, and the nature of knowledge; what it is, and how it can be preserved and renewed.*

One of the problems with data structures is that they might already be defined before any data is entered. As outsiders to these communities and their ICH, we cannot readily understand how this content should be structured. In particular, the use of meta-data has been criticised by several authors (see for example, Hughes and Dallwitz, 2007; Verran et al., 2007). In our own work in Namibia with the OvaHerero Elders we attempted to organise videos spatially in a 3D terrain in the locations where the practices (and recordings) were performed, as these are highly location-specific (see for example Rodil, 2015). But as with other approaches, a visual-spatial form of organisation comes with its own set of challenges which have to be solved together with the indigenous community.

These four elements (user, interaction, interface and content), in a rather simplistic conceptualisation, all make visible some of the challenges being submerged, yet are very influential when we look at the 'culture' of digital systems.

Finding an approach to handle the digital challenge

In our research group we have the following premise for our projects. If the current ICH curators are the rightful owners and future curators, they must be partners in the design of artefacts to ensure that the ICH is fairly handled by the system. But as they are to be future curators of this digitised ICH they must be considered users as well. If they are considered as users, surely the system must deliver a meaningful experience to them?

We are able to develop artefacts useful in familiar contexts, but we cannot inform design from these familiar contexts when the context of use is in an indigenous setting. What is a meaningful system for people in indigenous contexts might contradict what is meaningful to us, as we do not belong to these communities. Instead of forcing indigenous people to adopt or unlearn their own perspectives, we should seek to adapt our own perspectives.

Since an artefact can be viewed as a social construct and becomes a tangible product of the programmer's interpretation of reality and the practices of the community he/she belongs to, the artefact becomes a manifestation from a certain perspective. But, how do we check our own assumptions and the perspectives embedded in the technology?

This challenge, in our experience, can be handled by being careful when selecting the design methodology – essentially the processes, values and theoretical foundations for designing.

As we argue (Rodil and Rehm, 2015), for the active inclusion of indigenous people as decision-making partners in the design and preservation processes, we seek to co-design artefacts carrying the local viewpoints rather than those of the developers. The design methodology we suggest using is called Participatory Design.

Participatory Design

Participatory Design is a design approach where developers engage in close partnerships with users in designing more suitable systems. This design approach can be viewed through the following three rationales (see for example Greenbaum and Halskov, 1993):

- **Constructivism** as what we hold for real is the result of our personal and cultural interpretation of the world around us (Vrasidas, 2000).

- **Tools and methods** as approaches to make it possible for participants and researchers to work together on design. These methods and tools are characterised by being practical, accessible and usable for participants as they may be unable to program / use the tools of the professional (see for example Spinuzzi, 2005).

- **Political standpoint** it is a core value that participants should be empowered to shape their own digital futures and artefacts of which they will eventually become the users (Kensing and Blomberg, 1998).

It is a tenet of Participatory Design to carry out design activities in the users' context as developers need to learn about the context in which they will be used (by ethnographic methods and contextual dialogues); meanwhile participants (termed co-designers) learn about the technology so they can become critical and influence the technological construction.

For more recent works on Participatory Design in indigenous community settings, consider reading Sabiescu et al., (2014); Winschiers-Goagoses et al., (2012); Zaman et al., (2015); Winschiers-Theophilus et al., (2010); Puri et al., (2004); Rodil, Winschiers-Theophilus and Jensen, (2012), and lipito Mendonca and Van Zyl (2014).

These iterative design processes and interactions of design taking place in indigenous communities create a field of tension where perspectives literally meet on the digital interface between world-views.

During our long commitment to indigenous communities in Namibia, I have experienced the way in which design has become an alternative approach to ICH, and the processes of carrying ICH into the design of artefacts becomes an act of preservation and understanding of the tacit knowledge surrounding practices (see for example Rodil et al., 2014). These experiences have also highlighted how our own cultural practices embedded in technology design contain hidden cultural assumptions that influence the design (see for example Rodil, 2015).

Co-designing artefacts that no longer mimic western culture, community and society with the assistance of indigenous communities might be useful in other ways. The insights gained might in turn benefit those societies that usually create technology – namely the western world. While this is a positive by-product, the main objective is to construct artefacts which are meaningful to indigenous curators. I would claim that the inclusion of indigenous communities is (at least) two-fold:

A: to make useful systems, developers need assistance from members of the indigenous communities - who best know their own world - to design systems relying on a local ontology.

B: to promote access (see for example Dyson, 2004) to digitised ICH for indigenous communities to be able to curate and digitise by themselves.

Designing artefacts together becomes a dialogue between people with different view-points, as when we are co-designing we are laying on the table some of the tacit intangible properties which we each hold for real.

Conclusion

I do not have a perfect solution to these digital challenges, as all projects and the material to be preserved are highly contextual and situational. I would, as a starting point, suggest that when engaging in digitising ICH, researchers could reflect on the following questions:

- Who is the artefact intended for, who is the user?
- Does it prioritise certain perspectives at the expense of others?
- Is the interaction and interface meaningful for the current curators of ICH?
- How is the content organised? Is it accessible and does the organisation follow local protocols and values?
- How are the curators involved in, or prohibited from shaping their own digital future?

With our approaches to digitising and preserving ICH for future generations, often for the benefit of the marginalised, we must be mindful about introducing artefacts which might run counter to our ambitions of fairly representing, collecting and ensuring curators' own access to their own ICH. I propose a critical stance which might not only shed light on the particular perspectives these digital systems are 'born' with, but should also involve and invite in the expertise of the communities who are already performing and maintaining their own intangible heritage. Meanwhile, there is a tremendous potential in digitising and bringing back ICH into school curricula for indigenous populations in forms that appeal to young people interested in technology - perhaps in the form of stories and life perspectives, which might better resonate with indigenous world-views. One way to approach this challenge is to bring about what we hold for real by ensuring that we meet and start a dialogue.

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